

Addendum to
Evaluating the Equalization Program
The Choice of the Standard in the RTS

by

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The purpose of this Addendum is to explore the implications of alternative standards of equalization under the RTS. The following property of the RTS system facilitates the comparison of alternative standards:

Given the number of tax bases included in the RTS, moving from any one standard to another entails equal per capita changes in entitlements for all provinces.

To see this, consider the formula determining the per capita entitlements E_b^i and E_b^j from a given base b for any two provinces, i and j :

$$E_b^i = \bar{t}_b (\bar{B}_b - B_b^i), \quad E_b^j = \bar{t}_b (\bar{B}_b - B_b^j) \quad (1)$$

where B_b^i is the per capita tax base in province i , \bar{B}_b is the standard base and \bar{t}_b is the national average tax rate on base b . \bar{B}_b could be based, for example, on the five-province or the ten-province standard. Subtracting one entitlement from the other, we obtain:

$$E_b^i - E_b^j = \bar{t}_b (B_b^j - B_b^i) \quad (2)$$

Thus, the difference in per capita entitlements from this revenue source is independent of the standard used. Of course, this assumes that the same national average tax rates are used under each standard. The same principle applies for all revenue sources, so *the difference in aggregate per capita entitlements is independent of the standard used.*

This has some rather profound implications:

1. As one moves from the current five-province standard to a ten-province standard, per capita entitlements are adjusted by equal amounts for all provinces. In principle, this could go either way, though apparently per capita entitlements are higher under the ten-province standard.
2. As the standard goes up, per capita entitlements go up for all provinces, so some provinces will switch from being non-recipients to recipients.
3. Full equalization would be achieved by adopting a top-province standard, that is, an Alberta standard. In this case, the top province would receive a zero entitlement, and all others would be positive. This gross scheme of full equalization would entail a much higher standard to which provinces are

equalized (about \$10,000 per capita) than a full net equalization scheme (about \$6,400 per capita). Since the gross scheme is funded from federal revenues while a net scheme is self-financing, full equalization under a gross scheme would require more federal tax room than a net equalization scheme to be fully equivalent.

4. If one adopted, say, an Ontario standard, Ontario would have a zero entitlement, and there would be some positive and some negative entitlement provinces.
5. In a gross scheme of equalization, anything less than a top-province standard would entail less than full equalization. In these circumstances, one could argue that there is nothing really special about a ten-province standard except that it equalizes all below-average provinces to the national average. Under a net system, the ten-province standard would entail full equalization, but that is not the case under a gross system.
6. Property (2) applies whatever revenue sources are included in the base, even if some are partially included. Of course, if one compares a system with all revenue sources included to one with less than full inclusion, differences will *not* be equal per capita. Thus, the choice of what revenue sources to include, unlike the choice of the standard, has real effects on differences in entitlements across provinces.
7. Note that increasing the standard has the same effect on entitlements as an increase in bloc transfers under the CHS/CST system. The difference is that in the latter case, the increases in transfers go to all provinces, while equal per capita increases from changes in the equalization standard only go to the recipient provinces. The implication of this is that one could move the equalization system closer to full equalization by a revenue-neutral reduction in bloc transfers accompanied by an increase in the equalization standard. This seems to be an important property, especially where there are very wide disparities in entitlements.
8. If the total equalization entitlement is fixed, relative entitlements could be calculated by formula (2) and equal per capita adjustments made to satisfy the fixed sum. With a fixed sum, it makes little sense to talk about using a five-

versus ten-province standard since they give the same relativities. Equivalently, the choice of the fixed sum is comparable to the choice of a standard under the RTS system.

9. Incentive effects will differ slightly under different standards, though the differences are likely to be very small. We can distinguish between base tax-back effects and rate tax-back effects:

a. Base tax-back: This depends upon whether a province is in the standard or not. From (1), the effects of an increase in province i 's base on its entitlement for the two cases are as follows:

$$\frac{\Delta E_b^i}{\Delta B_b^i} = -\bar{t}_b \left(1 - \frac{P^i}{\bar{P}} \right) \text{ if } i \text{ is in the standard}$$

$$\frac{\Delta E_b^i}{\Delta B_b^i} = -\bar{t}_b \text{ if } i \text{ is not in the standard}$$

where P^i and \bar{P} are populations in province i and in the standard provinces. The differences in these will be negligible if P^i is small relative to \bar{P} .

b. Rate tax-back: The effect of a change in province i 's tax rate on its entitlement is:

$$\frac{\Delta E_b^i}{\Delta t_b^i} = \frac{\Delta \bar{t}_b}{\Delta t_b^i} (\bar{B}_b - B_b^i)$$

The rate tax-back will be negligible if province i 's tax revenue is a relatively small proportion of national revenue for tax base b .